

**LISTING OF CLAIMS:**

**What is claimed is:**

1. (Currently amended) An optical security element ~~having~~ comprising:  
a substrate layer for producing an optically perceptible effect, wherein the substrate layer  
including a surface region divided into one or more pattern regions and a background region,  
wherein a relief structure forms a diffraction grating in each of the one or more pattern regions  
and the background region, a profile of each diffraction grating being defined by relief  
parameters, the relief parameters including a relief shape, relief depth, spatial frequency and  
azimuth angle is shaped in a surface region of the substrate layer, which region is defined by an  
X-axis and a Y-axis, for producing an optically perceptible effect, wherein one or more of the  
relief parameters defining the relief structure in the surface region are of each diffraction  
grating is varied periodically in accordance with a periodic parameter variation function,  
wherein the surface region is divided into one or more pattern regions and a background region,  
and wherein one or more of the relief parameters defining the relief structure relief shape, relief  
depth, spatial frequency and azimuth angle in the background region and the one or more  
pattern regions are varied periodically in accordance with a periodic parameter variation  
function, wherein the relief structure is a diffraction grating and the period of the parameter  
variation function defining the profile is between 20  $\mu\text{m}$  and 300  $\mu\text{m}$ , and the one or more of  
the relief parameters defining the relief structure, relief shape, relief depth, spatial frequency  
and azimuth angle in the one or more pattern regions are varied in accordance with a parameter  
variation function which is phase-displaced with respect to the parameter variation function  
defining the profile in of the background region.

2. (Previously Presented) An optical security element according to claim 1, wherein  
the phase displacement of the parameter variation function between the pattern region and the

background region is about 180 degrees.

3. (Cancelled)

4. **(Currently amended)** An optical security element according to claim 1, wherein an azimuth angle of the relief structure is a diffraction grating whose azimuth angle is varied periodically in accordance with the parameter variation function.

5. **(Currently amended)** An optical security element according to claim 4, wherein a mean of the mean azimuth angle in relation to the resolution capacity of the human eye is constant.

6. **(Currently amended)** An optical security element according to claim 4, wherein the parameter variation varies the azimuth angle of the diffraction grating periodically in dependence on the value of the an axis extending across at least a portion of the surface region ~~X-axis~~.

7. (Previously Presented) An optical security element according to claim 6, wherein the parameter variation function varies the azimuth angle of the diffraction grating in such a way that the diffraction grating is composed of a plurality of serpentine line-shaped lines.

8. **(Currently amended)** An optical security element according to claim 7, wherein the parameter variation function is a sine function which varies the azimuth angle of the diffraction grating in dependence on the value of the axis ~~X-axis~~.

9. **(Currently amended)** An optical security element according to claim 4, wherein the parameter variation function varies the azimuth angle of the diffraction grating periodically in dependence on the value of ~~the~~ an X-axis and the value of the a Y-axis, wherein the X-axis and Y-axis define an extent of the surface region.

10. (Previously Presented) An optical security element according to claim 9, wherein the parameter variation function varies the azimuth angle of the diffraction grating in such a way that the diffraction grating is composed of a plurality of lines arranged in concentric circles.

11. (Previously Presented) An optical security element according to claim 4, wherein the diffraction grating has a spatial frequency of more than 300 lines per mm.

12. (**Currently amended**) An optical security element according to claim 1, wherein a special frequency of the ~~relief structure is a~~ diffraction grating ~~whose spatial frequency~~ is varied periodically in accordance with the parameter variation function.

13. (**Currently amended**) An optical security element according to claim 12, wherein a mean of the ~~mean~~ spatial frequency in relation to the resolution capacity of the human eye is constant.

14. (**Currently amended**) An optical security element according to claim 12, wherein the parameter variation function varies the spatial frequency periodically between a maximum frequency, ~~preferably 1200 lines per mm,~~ and a minimum frequency, ~~preferably 800 lines per mm,~~ in dependence on the value of the an axis extending across at least a portion of the surface region ~~X-axis~~.

15. (Previously Presented) An optical security element according to claim 14, wherein the parameter variation function is a sawtooth function, a triangular function or a sine function.

16. (**Currently amended**) An optical security element according to claim 1, wherein a profile depth of the ~~relief structure is a~~ diffraction grating ~~whose profile depth~~ is varied periodically in accordance with the parameter variation function.

17. **(Currently amended)** An optical security element according to claim 16, wherein the parameter variation function varies the profile depth of the diffraction grating periodically between a maximum depth and a minimum depth in dependence on the value of the an axis extending across at least a portion of the surface region ~~X-axis~~.

18. (Previously Presented) An optical security element according to claim 16, wherein the parameter variation function is a triangular, rectangular or sine function.

19. (Previously Presented) An optical security element according to claim 1, wherein the relief shape is varied periodically in accordance with the parameter variation function.

20. (Previously Presented) An optical security element according to claim 19, wherein the relief shape is varied periodically between two asymmetrical, mutually mirror-symmetrical relief shapes.

21. (Previously Presented) An optical security element according to claim 1, wherein the width of the troughs of the relief structure is varied periodically in accordance with the parameter variation function.

22. (Withdrawn) An optical security element according to claim 1, wherein the mean azimuth angle of the relief structure respectively corresponds to the azimuth angle of an associated verification grating.

23. (Previously Presented) An optical security element according to claim 1, wherein the phase displacement between the background region and the pattern region is accompanied by a further function change.

24. (Withdrawn) A system for visualising items of concealed information comprising a security element having a substrate layer in which a relief structure defined by relief parameters is shaped in a surface region of the substrate layer, which region is defined by

an X-axis and a Y-axis, for producing an optically perceptible effect,

wherein

one or more of the relief parameters defining the relief structure in the surface region are varied periodically in accordance with a periodic parameter variation function, wherein the surface region is divided into one or more pattern regions and a background region, wherein one or more of the relief parameters defining the relief structure relief shape, relief depth, spatial frequency and azimuth angle in the background region and the one or more pattern regions are varied periodically in accordance with a periodic parameter variation function, wherein the relief structure is a diffraction grating and the period of the parameter variation function is between 20  $\mu\text{m}$  and 300  $\mu\text{m}$ , wherein the one or more of the relief parameters defining the relief structure relief shape, relief depth, spatial frequency and azimuth angle in the one or more pattern regions are varied in accordance with a parameter variation function which is phase-displaced with respect to the parameter variation function of the background region, and wherein the system further has a verification element which has a verification grating which is defined by a periodic transmission function and whose period corresponds to the period of the parameter variation function.

25. (Withdrawn) A system according to claim 24, wherein the transmission function is a non-binary transmission function, in particular a sine function.

26. (Withdrawn) A system according to claim 24, wherein the mean azimuth angle of the relief structure respectively corresponds to the azimuth angle of the associated verification grating.